

Information Technology Resources Board

The Diminishing Pool of Skilled Federal Information Technology Executives:

IT Brain Drain Report

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About this Report

We, the Information Technology Resources Board, an interagency group of senior information technology (IT) practitioners, were asked to look at the growing concern in industry and government over the diminishing pool of skilled IT workers. Specifically, this report shares our recommendations on how the government could address the loss of workers generally thought of as "managers of managers" and "managers of contracts."

We did not attempt, in this short report, to provide an academic thesis on the very broad and complex problem called "brain drain." We did, however, look closely at the issue as it pertains to the top levels in government and develop recommendations we hope will lead to specific, feasible actions. Our focus was on "How do we keep our current top IT executives and develop their successors?"

As you will see, some of our suggestions are reasonably easy to address and implement (one or two have been implemented since March 1998), while others require further discussion and debate. In short, we believe the brain drain problem facing the government is real and serious. We also believe, however, there are actions and solutions within the government's reach that can facilitate the continuance of a highly skilled Federal executive work force.

Arnold Bresnick

Chair
Information Technology
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Executive Summary

The Office of Management and Budget (OMB) asked the Information Technology Resources Board (ITRB) to study the impact on the Federal government of the growing shortage of information technology (IT) professionals—the IT "brain drain." Specifically, OMB asked, "How does the government produce the next group of top IT executives?"

This report is in response to OMB's request. It describes the factors that affect the pool of candidates for the top IT jobs in government and provides explicit actions addressing the recruitment, development, and retention of Federal executives.

The report recommendations basically fall into three action categories: implement new management initiatives, change policy and regulations, and change culture. They solicit a variety of possible responses, including actions by agencies, topical guidance to agencies, OMB directives, Executive orders, and revised laws and regulations:

Implement New Management Initiatives	Change Policy and Regulations	Change Culture
Seek common IT solutions across government	Increase rewards for performance at executive and mid-management levels	Make improvements in the workplace
Endorse and promote the CIO University	Permit reduced work schedules without penalties	Ensure widest possible competition
Encourage management development opportunities	Eliminate "time card" mentality	Adopt work/life programs
Use cross-government forums	Increase mobility into and out of government	Establish mandatory rotational programs
Reach out to professionals in other disciplines		Encourage greater use of existing financial incentives
Leverage existing executive development forums		Plan for succession to top jobs

The IT brain drain problem is real—and serious. For the government to be successful in delivering its mission outcomes in the future, it must be *effective in retaining* its top IT executives and *competitive in recruiting* the best candidates from outside the government.

This report describes feasible actions that the government can take to maintain a highly skilled corps of top IT executives and to lessen the impact of brain drain on the Federal environment.

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Background

Today, it is difficult to pick up a trade journal or newspaper that does not contain an article on the growing shortage of employees to fill information technology jobs. Virginia Tech recently released a study showing that 346,000 computer programmer and systems analyst jobs are currently vacant in companies with 100 employees or more. The Labor Department estimates 95,000 new computer scientists, systems analysts, and programmers will be needed every year through the year 2005. The Information Technology Association of America states, "The shortage [in information technology workers] is a fundamental threat to the economic growth of the United States." ("Workers for Tech Jobs," *The Washington Post*, January 12, 1998)

The problem is not restricted to mainstream technical positions, however. In the January 1998 issue of *Human Resources*, the magazine addresses the diminishing pool of top technology managers. It states, "On the threshold of the new millennium, HR executives at the nation's largest employers grapple with finding and cultivating the next generation of leaders." Although there have not been any studies, to our knowledge, that specifically address the problem in the context of the Federal workplace, we can assume it is at least as serious.

Introduction

This report responds to OMB's request for ideas relating to the diminishing pool of skilled IT managers and executives in the Federal government.

In its simplest form, the following diagram illustrates the brain drain problem:

Other than retirement (which is not addressed here), several major factors influence the pool of managers and executives from which selections are made to the top IT jobs in government:

- the Federal workplace,
- the draw by the private sector,
- the development of candidates for senior IT positions, and
- the number of candidates for senior IT positions.

Factors Influencing Brain Drain

The Federal Workplace

The Federal workplace environment significantly impacts the pool of skilled executives and managers positioned to advance to the top IT jobs in government. The climate, rules, processes, culture, attitudes, and morale of the work environment affect candidates for the pool by influencing their decision to continue Federal employment during the midpoints of their career. The same characteristics also affect individuals already in the pool by influencing their decision to stay and seek the top Federal jobs. All of these decisions—those made by mid-career employees and those made by the more senior executives—are occurring under the influence of growing private sector pressures to leave.

There are many general characteristics of the Federal workplace that have a negative impact on employees. These include a reluctance to make timely and difficult decisions, poorly defined decision processes, risk-averse attitudes, unclear motivators and incentives, poor communication, and the fact that public service is not valued. Others are more specific to the IT workplace environment and generally center on the perception that IT, and the IT professional, are not understood and valued. These influences, which are described in the following subsections, are important because they are having an effect on the work force at the same time employment opportunities abound in the private sector.

IT not valued—In many organizations, information technology is not valued as a core enabler of agency objectives. It is not viewed as a critical success factor. It is often treated as an administrative or infrastructure component, rather than a rich, integral resource for advancing and accomplishing agency mission objectives. Sometimes IT is thought of as being nothing more than the utility for day-to-day operations. On the other hand, in private industry, IT is viewed as a strategic competitive asset.

IT leadership not valued—Not only is the IT role misunderstood, but so is the IT leader. The IT leader is not valued and considered an "equal" partner among the business leaders in delivering mission performance. Consequently, he or she is often unable or unwilling to exercise appropriate leadership in the cultural environment of an agency. Additionally, the IT leader tends to be reactive—rather than proactive like his or her business colleague—in leveraging the potential benefits and contribution of IT.

Unclear responsibility for programs—Responsibility for the delivery of programs and mission outcomes is often divided across organizations, with no one individual accountable. Worse yet, when accountability is

clear, the empowerment and resources needed are missing. In the simplest terms—frequently, there are no "champions" for the government's most important programs and policies.

Unclear understanding of "success"—Federal officials are required to provide products and outcomes without a clear understanding of what constitutes success. The legislative language is often vague and leaves too much room for interpretation. An example is the requirement for an IT architecture. Agencies vary greatly in terms of their mission focus and the number and variety of their organizational components. Architectural success can be interpreted many ways, depending on the culture of the agency and perspective of the observer.

Skills not maintained—As more IT activities are contracted out, more IT professionals become contract managers. Over time, they lose their technical competence and expertise and become bored by what they consider to be less interesting work.

Lack of current technology—The government workplace implements new technology slowly. Lacking a profit incentive, the government is slow to justify the requirements for the latest in emerging technology. In contrast, high performing firms quickly admit that newly released and installed technology gives them the competitive edge.

Managing change—The Federal manager has difficulty in implementing technological advances in an environment where workplace changes are met with reluctance and resistance. A natural contention exists when emerging technology requires change while employee unions are focused on maintaining customary and usual work practices. Business constraints and delays occur when union locals negotiate separate agreements to implement the same or similar technology-driven innovation.

Lack of developmental opportunities—Although the Federal workplace is large and seems to offer many opportunities for advancement throughout the government, people become "stovepiped." Their advancement is often hindered because they have not been given the opportunities both within and outside the agency to develop new skills. One reason opportunities are withheld is because they are considered too valuable in their current jobs.

Demeaning work practices—The Federal employee is often subject to the perception that he or she cannot be trusted. Basic phone use, such as that to a weather service, is often restricted. Internet access, today's richest resource tool, is often restricted for fear of abuse. Employees are micro-managed. Localized and limited problems can result in inappropriate wide-ranging solutions. In many workplaces, telecommuting is not allowed or encouraged because trust in the employees is lacking.

The Draw by the Private Sector

More interesting work—The work in the private sector tends to be more varied and interesting than that offered by government agencies. The private sector focuses on and rewards research and innovation. Additionally, the work tends to be more appealing and, in some cases, easier because of a robust technological environment. Private firms are quick to adopt new and emerging technology, understanding that IT often provides a competitive advantage.

Higher pay—Many studies have documented the difference in pay between the public and private sectors. Not only are base salaries different, but the potential for bonuses is much higher in industry. The government is not able to tie incentives to dollar gains and reward employees accordingly.

More opportunities for advancement—The sheer size of the private sector provides more opportunities for advancement in mainstream IT firms and in businesses with large IT components. In the Federal government, the opportunities are not as obvious because the career paths to the top IT positions, including the chief information officers (CIOs), are often unclear or undefined. Candidates for top positions become discouraged and begin considering options beyond the Federal environment.

The Development of Candidates for Senior IT Positions

Not experienced in all required disciplines—Some candidates for top jobs lack the minimal level of knowledge of other disciplines essential to their job performance. For example, the new CIO might be highly skilled in technology but lack business acumen because of limited exposure to agency operational activities. Likewise, the new Chief Financial Officer (CFO) may be highly skilled in financial matters but lack information technology skills.

Lack of broad perspective—Some candidates lack the broad perspective needed to perform successfully at the top of the organization. These skills are sometimes hard to acquire because they come from outside of the focused project or program environments within which most managers operate. The skills are often acquired late, over time, after the individual is placed in the job. Because these managers are not given the opportunity to view the organization from the top, they do not understand the breadth and depth of their agency's interrelated and interdependent activities—and the broader responsibilities and activities of the government as a whole.

Minimal networking skills—Although frequently skilled in technology and policy issues, some candidates lack the necessary networking skills to perform effectively in top executive positions. When placed in visible positions of leadership, they are not able to command the presence and exhibit the rapport necessary to deal effectively with other executives and managers.

Education needing refreshment—Most candidates for the top positions in government are highly educated, holding one or more advanced degrees. Unfortunately, because today's work environment is evolving and technology is rapidly advancing, education quickly becomes obsolete. Staying current in technology advances and applications is essential to job success.

The Number of Candidates for Senior IT Positions

Downsizing of the Federal work force—The number of candidates, highly skilled or otherwise, for the top positions in government is impacted by the overall reduction and stabilization of the Federal work force. Clearly, the recent incentives to dramatically reduce the work force have influenced individuals to leave government, including those skilled executives qualified for the top IT positions.

Private sector is a limited source—The private sector has been a limited source of individuals for government's top jobs. Generally, highly trained IT professionals in the private sector are reluctant to accept Federal service positions because of the state of the Federal workplace and the benefits of private sector employment.

Conclusions

Of the major factors that influence the pool of candidates for the top IT jobs in government, at least four can be impacted or counterbalanced by government action: the federal workplace, the draw by the private sector, the development of candidates for senior IT positions, and the number of candidates for the senior IT positions. The remainder of this report focuses on these factors by providing explicit actions that can be taken to address the recruitment, retention, and development of Federal executives.

Recommendations

The recommendations of this report fall into three action categories:

- **Implement new management initiatives**, actions of an enterprise perspective that should be addressed by OMB
- **Change policy and regulations**, actions of a policy nature that should be addressed by legislators and the Office of Personnel Management
- **Change culture**, actions of an organizational and cultural nature that should be addressed by agencies.

Implement New Management Initiatives

Seek common IT solutions across government—Lessen the demand upon IT leaders and advance interoperability by consolidating IT activities, programs, initiatives, and solutions shared by multiple agencies. Free up IT executives to focus on agency-unique business. View the government as a seamless enterprise and apply sound business principles, such as Raines Rules, to determine and eliminate duplicate activity. Pro-actively seek opportunities for common solutions, such as those for electronic mail, finance, and electronic commerce. Stop "the reinvention wheel"—solve common agency problems once or twice, use the single solution many times. Direct the National Partnership for Reinventing Government (formerly the National Performance Review) to select a pilot project that has the greatest potential for return on investment. Endorse the project, oversee its progress, and direct its implementation across agencies.

Endorse and promote the CIO University—Establish a virtual university consisting of nationally acclaimed universities with academic programs and offerings focused on the Federal environment and the CIO core competencies. Require curriculums and teaching objectives based on the core competencies, and performance measures based on the teaching objectives. Establish an "accreditation" body of top government and academic advisors to evaluate the teaching objectives and performance measurement methods of the individual universities. Have the CIO Council "accredit" accepted schools. Offer enrollment to selected GS-15s, Senior Executive Service officials, and current CIOs and deputy CIOs. Include selected private sector individuals of comparable rank. Fund the enrollment of all government candidates. Award a "Certificate in the CIO Core Competencies," signed by the Vice President and the deans of the participating schools, upon graduation from the university. Endorse graduation from the CIO University as a major credential for top government jobs.

Encourage management development opportunities—Support existing, and develop new, mobility and exchange programs within and among government agencies, and between government agencies and industry. Develop future leaders by exposing them to the:

- *differing business lines of their agency,*
- *related disciplines affecting their management environment,*
- *varying perspectives and solutions of other agencies, and*
- *profit-driven management cultures of private firms.*

Use cross-government forums—Encourage the CIOs to visibly lead the government, from an IT perspective, by actively participating in established government and industry IT conferences, such as the

Interagency Resources Management Conference (IRMCO) and the Federation of Government Information Processing Councils (FGIPC). Use these conferences as a tool to manage the government enterprise—to send consistent messages and to leverage vision, direction, and policy to the senior managers in government.

Reach out to professionals in other disciplines—Develop a program for professionals from disciplines other than IT, such as administrative and scientific personnel. Consider modeling the program after the successful Trail Boss program sponsored by the General Services Administration. Increase the pool of potential top IT executives by graduating individuals trained in the latest IT curriculums who are also highly skilled in related disciplines.

Leverage existing executive development programs—Advise/direct agencies to:

- *develop high performing individuals in the CIO Core Competencies by sending them to DoD's Information Resources Management College's CIO Certificate Program;*
- *develop high performing individuals in big picture skills, and in IT program and project management skills centered on the CIO core competencies, by sending them to the General Services Administration's Trail Boss seminars; and*
- *enhance the treatment of IT at the Federal Executive Institute by modifying program and instruction to emphasize IT as a critical success factor and enabler of mission programs.*

Change Policy and Regulations

Increase rewards for performance at the executive and mid-manager levels—Establish a compensation program that increases financial rewards and opportunities for outstanding performance. For example, increase Federal Employees Retirement System and Civil Service Retirement System contribution limits for individuals with high performance ratings. Increase potential performance bonuses for the same conditions.

Permit reduced work schedules without penalties—Reform personnel rules to permit "gradual retirements," arrangements that reduce the work week for retirement-eligible executives without affecting earned retirement benefits.

Eliminate "time card" mentality—Change personnel rules so individuals are treated as salaried professional executives. Eliminate the requirement to monitor small increments of time and attendance.

Increase mobility into and out of government—Revise personnel rules regarding government status, eligibility, and recruitment by copying private sector conventions and processes. Position government so it is on an equal footing with private industry employers in personnel recruitment and retention matters. The government should be an employer of equal appeal at any and all stages in an individual's career. IT experts should be able to move easily into and out of government to refresh their skills and perspectives.

Change Culture

Make improvements in the workplace. Improve the workplace through the following:

- *Actively and aggressively use the media to improve the image of the Federal service and the Federal worker—at all levels. Sell government service by emphasizing advantages such as "greater span of control," "missions to believe in," and "opportunities to make a difference."*
- *Treat morale as a "product to be delivered." Consider the impact of day-to-day management decisions on morale, and respond accordingly. Give morale appropriate weight consistent with its possible impact on organizational performance.*
- *Establish a work culture in which the workweek is "limited," highly effective performance is valued, and results (not attendance) are rewarded.*

Ensure widest possible competition—Broaden competition for IT positions by opening announcements to professionals from administrative, scientific, and other disciplines who have the required administrative, technical, and managerial skills. Avoid needlessly restricting announcements that specify job series, thus reducing the potential applicant pool compared with other job series that allow more consideration.

*Adopt work/life programs—Adopt work/life programs advocated by the National Academy of Public Administration (in a booklet entitled *Work/Life Programs: Helping Managers, Helping Employees*). Work/life issues addressed in the booklet include: personal control; alternative work schedules; life support; employee assistance, wellness, and fitness programs; caregiver assistance programs; physical workspace; and telecommuting.*

Establish mandatory rotational programs—Within and across agencies, establish mandatory rotational programs in related disciplines (e.g., IT, finance, and administration) and in the business lines of the agency. Avoid stove-piped development that results in rigid and excessive cultural loyalties.

Encourage greater use of existing financial incentives—Encourage agencies to offer pay differentials and retention bonuses to high performing individuals "business case by business case."

Plan for succession to top jobs—Prepare for filling high-level vacancies by doing the following:

- *Hold senior managers accountable for training their pool of successors.*
- *Establish an open dialogue on the readiness and potential advancement of current managers. Using merit recognition techniques, identify high performing individuals for management development opportunities.*
- *Treat future leaders as corporate assets—not stove-piped resources. Cultivate vision at all management levels by requiring managers to think beyond their realms of responsibilities.*

- *Emphasize the benefits of an enterprise government perspective. Encourage interagency activity, participation, and networks. Endorse collaborative efforts among and between agencies.*
- *Involve the President's Management Council (PMC) in succession planning. Effect mobility opportunities for promising candidates.*

Summary

The IT brain drain problem is real—and serious. For the government to be successful in delivering its mission outcomes in the future, it must be effective in retaining its top IT executives and competitive in recruiting the best candidates from outside the government. This report describes feasible action items that the government can take to maintain a highly skilled corps of top IT executives and to lessen the impact of brain drain on the Federal environment.

Appendix

Information Technology Resources Board

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